CLAIMS

1. A method for detecting and counting the microorganisms in a sample comprising the steps of:
   a) selectively enriching the microorganism sought in the sample,
   b) conditioning of the aforementioned microorganism,
   c) immunomagnetically concentrating the conditioned microorganism,
   d) fluorescently labeling the concentrated microorganism, and
   e) detecting and analyzing the fluorescence.

2. A method according to claim 1, wherein the enrichment step is carried out in a composition comprising:
   - sodium pyruvate at a concentration ranging between 1 and 20 g/L, preferably between 1 and 10 g/L, and more preferably 4 to 6 g/L,
   - sodium thiosulfate at a concentration ranging between 0.5 and 5 g/L, preferably between 0.5 and 3 g/L, and still more preferably approximately 2 g/L,
   - catalase at a concentration ranging between 500 and 20 000 u/L, preferably between 2 000 and 8 000 u/L, and still more preferably approximately 5 000 u/L.

3. A method according to claim 2, wherein the aforementioned composition comprises in addition at least one antibiotic.

4. A method according to one of the claims 1 to 3, wherein the conditioning step is an induction step for at least one enzymatic activity specific to the microorganism sought, comprising adding to the microorganism's enrichment medium at least one non-fluorescent substrate specific to the aforementioned enzyme or enzymes.

5. A method according to claim 4, wherein steps a) and b) can be carried out simultaneously.

6. A method according to claim 4 or 5, wherein step c) can take place before step b) or step c) can take place after step d).

7. A method according to one of the claims 1 to 3, wherein the conditioning step, in the case where the microorganism sought is a Gram-positive bacteria, comprises in addition an induction step for at least one surface antigen characteristic of the microorganism sought, comprising adding to the microorganism's enrichment medium yeast extract at a concentration ranging between 5 and 50 g/L, preferably between 10 and 20 g/L, and still more preferably approximately 10 g/L.

8. A method according to one of the claims 1 to 7, wherein the immunomagnetic concentration step comprises the steps of:
   a) placing the microorganism sought, present in the conditioning medium, in contact with an antibody directed against an antigen specific to the microorganism, the aforementioned antibody being conjugated with a magnetic bead,
   b) separating the bead-antibody-microorganism complexes from the medium,
   c) separating the microorganism from the rest of the complex.

9. A method according to claim 8, wherein the antibody conjugated with a magnetic bead is directed against an antibody that is itself directed against an antigen specific to the microorganism sought.

10. A method according to claim 8 or 9, wherein the magnetic beads have a diameter ranging between 1 and 20 µm, preferably between 2 and 8 µm.

11. A method according to one of the claims 1 to 10, wherein fluorescent labeling of the microorganisms sought is carried out by adding to the medium containing the aforementioned microorganisms at least one substrate comprising a part specific to the enzymatic activity to be revealed and one label part.

12. A method according to claim 11, wherein the label part consists of a fluorogenic label excited at 488 nm chosen from the group comprising the xanthenes, acridines, phycobiliproteins, cyanine, and esculin.

13. A method according to claim 11 or 12, wherein the substrate part specific to the enzymatic activity to be revealed is chosen among a fatty acid, a monosaccharide, a phosphate, and/or a sulfate.

14. A method according to one of the claims 1 to 13, wherein the detection and analysis of fluorescence that make possible the numeration of the microorganisms are carried out by a technique chosen from the group comprising: flow cytometry, filtration cytometry and fluorescence microscopy.

15. A method according to one of the claims 1 to 14, wherein steps a), b), c), d), and e) as defined in claim 1 are preceded by a filtration step for the sample to be analyzed.

16. A method according to claim 15, wherein the filtration is carried out by means of a filter whose porosity ranges

between 20 and 150 microns, preferably between 30 and 100 microns, and still more preferably approximately 63 microns.

17. A method according to claim 15, wherein the filtration is carried out on a membrane presenting a porosity ranging between 0.2 and 10 µm, preferably between 0.2 and 5 µm, and still more preferably between 0.2 and 0.5 µm.

18. A selective enrichment medium for a microorganism sought in a sample comprising:
- a nutrient composition making the multiplication of the aforementioned microorganism possible, and
- a selective revivification composition for the aforementioned microorganism, wherein it comprises:
- sodium pyruvate at a concentration ranging between 1 and 20 g/L, preferably between 1 and 10 g/L, and more preferably 4 to 6 g/L,
- sodium thiosulfate at a concentration ranging between 0.5 and 5 g/L, preferably between 0.5 and 3 g/L, and still more preferably approximately 2 g/L,
- catalase at a concentration ranging between 500 and 20 000 u/L, preferably between 2 000 and 8 000 u/L, and still more preferably approximately 5 000 u/L.

19. An enrichment medium according to claim 18, wherein it further comprises at least one antimicrobial agent.

20. A kit with which to implement the method of detecting and counting of a microorganism according to one of the claims 1 to 17, comprising:
- an enrichment medium according to claim 18 or 19 in a liquid or dehydrated form, a plastic bag lined with a full-surface filter presenting a porosity of approximately 63 µm,

- magnetic beads as defined in claim 8,
- one or several substrates as defined in claim 11 in a lyophilized form,
- appropriate solvents.